

REMARKS

A telephonic interview with the Examiner is respectfully requested in order to expedite the prosecution of this case. Please contact the undersigned after reviewing this response.

Claim 2, 15 and 19 have been amended. Claim 1 has been cancelled. Claims 22-29 have been added. Thus, claims 2-9, and 11-29 are pending in the application.

Reconsideration of the application is respectfully requested based on the following remarks.

REQUEST FOR WITHDRAWAL OF FINALITY OF LAST OFFICE ACTION

Reconsideration of the finality of the above referenced office action is respectfully requested. The Examiner introduced a new ground of rejection that is neither necessitated by applicant's amendment of the claims nor based on information submitted in an information disclosure statement filed during the period set forth in 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p). In particular, independent claim 15 has been rejected with a new reference "Bluck". See item 4 of the office action. Because claim 15 read as originally filed at the time of the office action, and an IDS was not filed, the finality of the outstanding office action is premature and should be withdrawn. Furthermore, a new non final office action or a notice of allowance should be issued hereafter.

Response to Arguments

The Applicant disagrees with the Examiner's arguments in item 2 of the office action.

Although Li may state, "...balancing the species distribution around the chamber among the ions, radicals, and by products of plasma induced reactions..." and "...any gas combination can be supplied to either gas feed 38, 40...." he does not teach or suggest time multiplexing or selectively switching on/off between the two gas feeds 38 and 40. He is completely silent to alternating gas distribution between gas feeds 38 and 40 (turning one off while the other is on, and vice versa). In fact, it appears that all examples given by Li teach the opposite of the claimed invention. In Li, gas is flowing through both feeds at the same time. Li states, "...In the preferred embodiment, as shown in Fig. 2, the processing gas consists of an etchant gas, for example, C₄F₈ (octafluoro cyclobutane), and the carrier gas of

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argon supplied from respective sources 64, 66 (Col. 5, lines 4-7).” Li also states, “Among all the combinations, it has been found that supplying the C4F8 etchant gas only to the bottom gas feed and supplying the Ar carrier gas only to the top gas feed produces the best performance...(Col. 5 lines 44-47). Li additionally states that argon flow rate is relative to the C4F8 flow rate (see Col. 5, lines 54-60).

Moreover, it should be pointed out that section relied upon by the examiner further states, “...the invention provides a valuable control of the etching process with only slight increase in system complexity (Col. 6, lines 45-47). In contrast, the specification of the present invention repeatedly teaches against added complexity. See for example, paragraph 20 and 69.

Simply put, one skilled in the art would not be motivated to come up with the claimed invention from the teachings of Li. In fact, it appears that the Examiner has used hindsight reconstruction in order to make the rejection. It should be noted that the Federal Circuit has repeatedly warned against using the applicant’s disclosure as a blueprint to reconstruct the claimed invention out of isolated teachings in the prior art. See for example, *Grain Processing Corp. v. American Maize-Products*, 840 F.2d 902, 907, 5 USPQ2d 1788, 1792 (Fed. Cir, 1988).

Accordingly, it is believed that any rejection using Li is improper and should be withdrawn.

Claim Rejections – 35 U.S.C. § 102

Claims 2, 4, 9, 11-15 and 17-20 have been rejected under 35 U.S.C § 102(e) as being anticipated by *Bluck* (6,203,862).

In contrast to *Bluck*, claim 2 (and its dependents) specifically requires, “...continuously switching between the step of outputting the plasma forming component into the first processing zone and the step of outputting the plasma forming component into the second processing zone so as to effect the concentration of the plasma forming component between the first and second processing zones while generating or sustaining a plasma within the process chamber.” While *Bluck* may disclose time multiplexing, he does not teach or

suggest effecting the concentration of energy between first and second sides of the substrate while generating or sustaining a plasma within the process chamber. In *Bluck*, isolated plasmas are formed in processing chamber 10 in the vicinity of anodes 30 and 40. The anodes 30 and 40 do not work together to effect a concentration of energy while a plasma is generated or sustained. See for example Col. 4, lines 24-34. Accordingly, the rejection is unsupported by the art and should be withdrawn.

In contrast to *Bluck*, claim 15 (and its dependents) specifically requires, "...alternately distributing the received plasma forming component between two different regions of the process chamber so as to effect the concentration of the plasma forming component in the different regions of the process chamber while generating or sustaining a plasma continuously within the process chamber. Again, the anodes 30 and 40 do not work together to effect a concentration of energy while a plasma is generated or sustained. Instead, they work separately. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Although the rejections to the dependent claims should be withdrawn for at least the reasons as above, it should be noted that they offer additional language that is unsupported by the art. For example:

In contrast to *Bluck*, claims 13 and 17 specifically require, "...wherein the plasma forming component is gas." While *Bluck* may disclose energizing first and second anodes in a time multiplexed manner, *Bluck* does not teach or suggest outputting a gas in a time multiplexed manner. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Also in contrast to *Bluck*, claim 19 specifically requires, "...alternately distributing the received second plasma forming component between two different regions of the process chamber so as to effect the concentration of the second plasma forming component in the different regions of the process chamber while generating or sustaining a plasma within the process chamber." Accordingly, the rejection is unsupported by the art and should be withdrawn.

Also in contrast to *Bluck*, claim 20 specifically requires, "...wherein the first plasma forming component is gas and the second plasma forming component is energy. *Bluck* is

completely silent to time multiplexing the output of gas. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Claim Rejections – 35 U.S.C. § 103

Claims 8, 16 and 21 have been rejected under 35 U.S.C § 103(a) as being unpatentable over *Bluck* in view of *Suzuki* (5,522,934).

In contrast to both references, claim 21 specifically requires, "...via time multiplexing, selectively switching the delivery of the plasma forming components back and forth between a first delivery condition where the plasma forming components are only delivered to an inner region of the process chamber, and a second delivery condition where the plasma forming components are only delivered to an outer region of the process chamber ..." *Bluck* does not disclose energizing inner and outer anodes in a time multiplexed manner, and while *Suzuki* may disclose shorter and longer nozzles he does not teach or suggest time multiplexing the gas distribution out of the nozzles. In *Suzuki*, the gas appears to be always distributed through the nozzles. See for example, Col. 5, lines 36-52. Furthermore, neither reference gives any motivation to combine with the other. Again, it appears that the Examiner has used hindsight reconstruction to make the rejection. Accordingly the rejection is unsupported by the art and should be withdrawn.

With regards to claims 8 and 16, *Suzuki* does not overcome the deficiencies of *Bluck*. Neither reference teaches or suggests the limitations required by the independent claims 2 and 15 from which these claims depend (see above). Moreover, there is no motivation to combine these references. Further, they are addressing different problems. Accordingly the rejection is unsupported by the art and should be withdrawn.

Claims 2-9, 12-17 and 19 have been rejected under 35 U.S.C § 103(a) as being unpatentable over *Li* (6009830).

Li teaches injecting a chemically inactive carrier gas from a gas shower head and an etchant gas from one or more lower ports located below the shower head at the same time. No where does *Li* disclose time multiplexing or time modulation where the same gas flow is switched on at a first location and switched off at a second location (and vice versa). That is,

Li is completely silent to "... continuously switching between ... outputting the plasma forming component into the first processing zone of the process chamber without outputting the plasma forming component into the second processing zone of the process chamber; and outputting the plasma forming component into the second processing zone of the process chamber without outputting the plasma forming component into the first processing zone of the process chamber," as required by claim 2 (and its dependents). See also arguments made above in response the Examiner's arguments. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Also in contrast to *Li*, claim 15 (and its dependents) specifically requires, "... alternately distributing the received plasma forming component between two different regions of the process chamber..." Again, *Li* is completely silent to time multiplexing such as continuously alternating a gas flow between two locations. *Li* also provides no motivation to perform such a routine as *Li* only teaches supplying a first gas to a bottom gas feed and a second gas to a top gas feed. See also arguments made above in response the Examiner's arguments. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Although the rejections to the dependent claims should be withdrawn for at least the reasons as above, it should be noted that they offer additional language that is unsupported by the art.

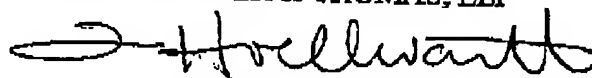
Claims 11 and 18-20 have been rejected under 35 U.S.C § 103(a) as being unpatentable over *Li* in view of *Shan* (6113731).

Shan does not overcome the deficiencies of *Li*. Both references fail to teach or suggest time multiplexing as embodied in the independent claims. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Conclusion

The applicant believes that all pending claims are allowable and respectfully requests a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Respectfully submitted,
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